AFIT/GIR/LSR/87D-3

COMPENDIUM OF NORMS AND ARCHIVAL STATISTICS ON THE AFIT SURVEY OF WORK ATTITUDES

THESIS

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THESIS

Presented to the Faculty

of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the

Requirements for the Degree of

Masters of Science in Information Resources Management

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December 1987

Acknowledgements

I wish to thank my wife, Debra, for her patience and support in completing this thesis. Also, I thank my children, Heather, Jared, Justin, and Holly, for the understanding they displayed in tolerating a grouchy dad these many months. I would also like to express my appreciation to David Roliff and the AFIT/LS computer room staff without whose outstanding support this thesis would not have been possible. Finally, Dr Robert Steel and Lt Col John Ballard are deserving of recognition for their part in setting me onto this research and guiding my efforts throughout the production of this thesis.

Abstract

The purpose of this research was to document the psychometric qualities of the Air Force Institute of Technology's (AFIT) Survey of Work Attitudes (ASWA). The study provides a brief background on the concepts of reliability, validity, and normative statistics. Then follows a statistical description of twelve independent samples obtained since 1981 with the ASWA at various government organizations around the United States. Sample size, mean, standard deviation, and reliability coefficient are provided for each scale within the ASWA for each sample in which it appears. Furthermore, a weighted average of each of these statistics over all samples in which a scale appears is also provided.

The situation-dependent nature of reliability leaves open the question of suitability of these scales to future research. Many of the scales are highly reliable; a few are not. Additional study, especially concerning validation of the ASWA scales, is still required to ascertain the true value of these measures to future research.

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COMPENDIUM OF NORMS AND ARCHIVAL STATISTICS ON THE AFIT SURVEY OF WORK ATTITUDES

I. Introduction

General Issue

In 1981, several faculty members of the Air Force Institute of Technology (AFIT), Department of Organizational Sciences, developed the AFIT Survey of Work Attitudes (ASWA) for conducting research on quality circles. AFIT, acting in the capacity of a management consultant, has subsequently used the instrument in more general organizational research. Over the years, this survey instrument has generated several thousand responses which have formed the bases for recommendations to commanders and managers of many organizations. Yet, no one has systematically evaluated the characteristics of this survey instrument, thus opening to question any recommendations based upon it. Further, no one has systematically documented the survey's normative statistics, a circumstance which has prevented the making of cross-sample inferences. The present research provides documentation to rectify these deficiencies.

Specific Problem

This research documents the measurement properties of scales embedded within the ASWA through reliability analysis of existing data. In addition, it catalogs normative statistics from various studies conducted using this instrument.

Definitions

Generally speaking, 'reliability' means the level of consistency found in measures produced by an instrument (Dominowski, 1980), and 'validity' means the extent to which an instrument measures what it claims to measure (Carmines & Zeller, 1979). The background section which follows will expand upon these definitions by exploring several aspects of these two measurement properties.

Scope and Limitations

Although the process of choosing the specific questions and scales for the ASWA may have had important impact upon the instrument's theoretical appropriateness as a tool for measuring certain abstract psychological and sociological concepts, an examination of that process is beyond the scope of this research. As such, this thesis will concern itself strictly with the statistical analysis of data derived by the instrument.

Background

This section presents background information on reliability, validity, and normative statistics. Specifically, it begins with a discussion of methods for determining the reliability of the AFIT Survey of Work Attitudes. Then follows an investigation of several perspectives on validity research, with a focus on locating means of assessing the validity of the ASWA. With that foundation established, the section concludes with a short explanation of normative statistics and the role they play in social research.

Reliability. Reliability is concerned with the 'stability or consistency of the values that are obtained' (Dominowski, 1980, p. 42) by a measurement instrument. Another way of putting it is that reliability is the 'tendency toward consistency found in repeated measurements of the same phenomenon' (Carmines & Zeller, 1979, p. 12). More technical definitions are that reliability is 'the ratio of the standard deviation of true scores to the standard deviation of the observed scores' (Crocker & Algina, 1986, p. 115) or that 'the amount of random error is inversely related to the degree of reliability of the measuring instrument' (Carmines & Zeller, 1979, p. 13). This last statement emphasizes that all measurements contain random error to some degree.

There are primarily three approaches to estimating reliability: test-retest, alternate forms, and internal consistency. The test-retest and alternate forms methods involve two administrations of the same instrument to the same subjects (Crocker & Algina, 1979). Since this research deals with already existing data, no possibility now exists for administering the survey a second time to the same subjects. Thus, these methods are inappropriate to this research. However, the internal consistency approach requires only one administration of a survey and therefore provides an appropriate method for ascertaining reliability of scales within the ASWA.

One method of estimating internal consistency reliability is with the split-half technique. This technique 'estimates reliability by treating each of two parts of a measuring instrument as a measuring scale' (Nachmias & Nachmias, 1981, p. 149) in itself. A researcher divides the measuring instrument into two subsections, either randomly or

by placing odd-numbered questions in one set and even-numbered questions in the other. The researcher then administers the full set of questions to one test group and correlates the results of the subsections to obtain an estimate of reliability. However, because longer questionnaires tend to have greater reliability than shorter ones, the reliability of the full questionnaire will be greater than the reliability of the subsets. Using the Spearman-Brown Prophecy Formula, the reliability of the full questionnaire may be estimated based upon the reliability of the subsets (Carmines & Zeller, 1979, p. 41).

Because this reliability is estimated from a single administration of the questionnaire, fewer potential sources of variance are treated as error variance. Thus, the split-half method tends to yield 'the highest estimate of reliability' (Cascio, 1978, p. 75) of the different estimation approaches.

There is unfortunately an indeterminancy about reliability estimates made by the split-half technique. That is to say, the reliability coefficient arrived at by this method may be different for each different combination of items in the subsets (Carmines & Zeller, 1979, p. 43). For instance, the reliability coefficient determined from two subsets made up of items (1, 2, 3) and (4, 5, 6) will likely be different from the reliability coefficient determined from subsets of items (1, 3, 5) and (2, 4, 6) from the same questionnaire.

This indeterminancy can be avoided by using 'coefficient alpha' which is 'the mean of all possible split-half coefficients' (Cronbach, 1951, p. 331). Carmines and Zeller (1979) recommend use of coefficient alpha over other available methods because of its general applicability

and relatively simple computation using correlation matrices (p. 51). The Statistical Package for the Social Sciences (SPSS), the computer software package used in this research, provides a function named 'RELIABILITY' which produces coefficient alpha as its default measure (Specht & Bubolz, 1981, p. 256).

The interpretation of reliability coefficients is highly dependent upon the use to which researchers intend to put their results. 'There is no fixed value below which reliability is unacceptable and above which it is satisfactory' (Cascio, 1978, p. 77). While some researchers (Carmines & Zeller, 1979) suggest using scales with reliabilities of at least .80 and others (Hendrix & Halverson, 1979) set .70 as their cutoff, researchers must make this determination based upon their own best judgments.

Although the definitions of reliability and validity given in the introduction might lead one to believe that these are two distinctly separate concepts, in reality they share a definite relationship. Cascio (1978) notes that 'reliability serves as a limit or ceiling for validity' (pp. 85-86), but not as a directly proportional estimate of it. In other words, the validity coefficient may be less than or equal to the square root of the reliability coefficient but never greater than it. As such, reliability forms 'a necessary but not sufficient condition for validity' (Nunnally, 1970, p. 173). An unreliable instrument cannot be a valid instrument, but a highly reliable instrument is not necessarily a valid one for particular types of research.

Validity. As has already been stated, the general meaning of the term 'validity' is that an instrument measures what it purports to

measure (Carmines & Zeller, 1979). Cascio (1978) offers a somewhat more technical definition of validity: 'the proportion of true variance that is relevant to the purpose of the measuring procedure' (p. 85).

In cases of the measurement of behavior or facts, the concept of validity is intuitively clear as the 'value that would be agreed on by several external observers observing the same event' (Sudman & Bradburn, 1982, p. 12). However, in the measurement of attitudes and opinions, with which the ASWA is concerned, the meaning of the term is not so clear because attitudes and opinions exist only within individuals' minds and cannot be directly measured by external observers. This means validity is tied to how researchers operationalize definitions of the attitudes and opinions they wish to study (Sudman & Bradburn, 1982). As such, validity is inferred rather than observed.

Along these lines, Rossi and Freeman (1985) offer four major considerations in assessing a measuring instrument's validity. First, the operational definitions of the concepts being studied should be the same as those used in previous studies of those concepts. This particular aspect of validity is touched upon in the discussion under the heading 'content validity' which follows. Second, the results obtained with a given measuring device should be consistent with the results obtained when using an alternative device which has already proven effective. Third, measures which predict or even imply prediction of behavior or other attitudes should be judged against the accuracy of their predictions. Considerations two and three will be discussed further under the heading 'criterion-related validity.' Fourth, items within an instrument which are designed to measure the same concept

should be alternative measures of the same thing. This final consideration will be discussed later under the heading 'construct validity.'

Validity is always discussed in relation to specific circumstances. An instrument must be validated 'in relation to the purpose for which it is being used' (Carmines & Zeller, 1979, p. 17)--instruments valid for one purpose are not necessarily valid for a different purpose. Validity 'is not an intrinsic property of a measurement procedure, but rather it is situation-specific varying with the characteristics of the sample chosen and the objectives of the user' (Cascio, 1978, p. 84).

The literature describes essentially three different ways of evaluating how well an instrument measures what it is supposed to measure: content validity, criterion-related validity, and construct validity. However, Cascio (1978) points out that although these three approaches 'can be discussed independently, they are interrelated operationally and logically' (p. 87).

Content Validity. Content validity is concerned with how fully an instrument measures the concept of interest. According to Cascio (1978), the question is whether or not a measuring procedure 'contains a fair sample of the universe of situations it is supposed to represent' (p. 87). Carmines and Zeller (1979) use the example of a test of mathematical abilities, explaining that, to have content validity, the instrument must reflect all aspects of mathematical operations, not just a portion of the subject such as addition or subtraction.

Nachmias and Nachmias (1981) explain that content validity is especially important in the initial construction and use of measuring

instruments. Cascio (1978) further points out that content validity is 'not expressed in correlational terms . . . [and] is primarily concerned with inferences about test construction rather [than] . . . test scores' (p. 88). As such, an investigation of content validity is beyond the scope of this research since this research is based strictly on the survey results (scores) already on file.

Criterion-Related Validity. Criterion-related validity is concerned with how well an instrument predicts an external, phenomenologically distinct criterion variable (Carmines & Zeller, 1979). Criterion-related validity may be 'determined by correlating the results of the instrument in question with the results of another measure which is known to be valid and reliable' (Wright, 1979, p. 48). For instance, if an instrument is intended to predict individuals' success in a particular job and the scores on the instrument correlate highly with demonstrated success on that job as measured by another instrument which is known to be valid and reliable, then the instrument in question is valid in terms of the criterion it is designed to predict. Alternately, criterion-related validity may be assessed by correlating the results of a measure with a directly observable action or behavior. For instance, if a scale which measures an individual's job satisfaction has a high negative correlation with the criterion of quitting a job, then it has validity in relation to that criterion.

Technically, if the criterion being measured exists at the same time as the measurement, the validational technique is called concurrent validity; if the criterion will exist sometime after the measurement, the technique is called predictive validity (Cronbach, 1970; Carmines &

Zeller, 1979). 'Predictive validity demonstrates in an objective statistical manner the actual relationship between predictors and criteria in a particular situation' (Cascio, 1978, p. 89).

An approach to ascertaining the criterion-related validity of the scales of interest to this research would be to determine correlations between the scales in the ASWA and external scales or between the ASWA scales and indicators of behavior gathered at some time after the survey was initially administered. A possible target for comparison, which is available in the data gathered for this research, is the results of a separate supervisory performance appraisal which was obtained at the same time that the AFIT Survey of Work Attitudes was administered.

Construct Validity. Construct validity is the extent to which a measurement scale measures some theoretical concept or trait (Anastasi, 1968). It is concerned with making inferences from survey results about 'a behavior domain which cannot be adequately represented by a single criterion or completely defined by a universe of content' (Crocker & Algina, 1986, p. 238). In other words, construct validity is important to variables or measures for which content validity and criterion-related validity are inadequate. The types of constructs to which this approach to validity usually applies include such nonobservables as 'intelligence,' 'anxiety,' 'job satisfaction,' and 'suggestibility.' Because of its relevance to 'higher mental processes,' construct validation 'requires the gradual accumulation of information from a variety of sources' (Anastasi, 1968, p. 115).

The kinds of questions construct validity is interested in are, for example, how do we explain the answers to a survey scale psychologically

or are we sure the scale measures the attribute we think it is measuring (Cronbach, 1970). Construct validation may attempt to answer these questions through a number of different techniques. These techniques include analysis of internal consistency, in which individual items must correlate highly with overall score on a measuring scale to be considered valid; age differentiation, in which results of a measuring device concerned with concepts which vary with age must reflect that variation; and correlations with other known measures of the concept, in which construct validity is assumed when the tests correlate moderately but not so highly as to be duplicate measures (Anastasi, 1968). However, Cascio (1978) asserts that "except for factors derived from factor analysis, there are no quantitative statements of construct validity" (p. 95).

Anastasi (1968) describes factor analysis as a "technique for analyzing the interrelationships of behavior data" (p. 116) with its goal being "to simplify the description of behavior by reducing the number of categories from an initial multiplicity of test variables to a few common factors, or traits" (p. 116). Factor analysis provides the correlation coefficient of each item in a scale with each of this reduced number of factors. Those items which correlate strongly with only one factor are considered better measures than those that correlate with several factors (Bohrnstedt, 1970).

Normative Statistics. Simply stated, normative statistics describe a sample in such a way as to allow comparison with other samples. Though there are some tests whose raw scores have a clearly understood meaning in and of themselves, the scores on many tests and measures take on meaning only in comparison with other scores (Crocker & Algina, 1986).

However, scores taken from different samples are not necessarily comparable in their raw form. Comparison of results from different samples only becomes possible when they are 'expressed on the same scale' (Magnusson, 1967, p. 232). The common scale for comparing results of different samples is called a 'standard-score scale.' Such scales are obtained by transforming raw scores with a sample's mean and standard deviation to obtained normalized or 'z' scores. A normalized score can be compared with any other normalized score in a meaningful way (Magnusson, 1967).

This research will provide the foundation for psychometric research on the ASWA. A reliability coefficient will be determined for each scale in the twelve samples available. In addition, to allow cross-sample comparisons, this research will provide means and standard deviations for each survey scale from each sample. However, it will be left to future research to undertake the more protracted process of validation.

II. METHOD

SAMPLES

This research will deal strictly with data collected from twelve samples by AFIT faculty using the ASWA. The samples were obtained since 1981 at various locations around the United States. This section will provide a short narrative description of each sample.

Demographics. Table 1 displays the demographic items from the survey instrument with their location numbers in the three survey versions. The location numbers are read as the item's page and question number on each version of the ASWA in which it appears.

Version I. Table 2 provides statistical breakouts for each of the background items for the first two samples, which were the only samples taken using version I of the ASWA.

Sample 1 (N=142) was obtained at an Air Force hospital facility in the American Southwest using survey version I.

Sample 2 (N=245) was taken from an Air Force Tactical Air Command civil engineering organization in the Southeast using survey version I.

Versions II & III. Table 3 provides demographic statistics for the remaining ten samples. Samples 3 through 11 were obtained using version II of the ASWA; sample 12 was the only sample obtained using version III. The demographic items used in versions II and III are identical.

Sample 3 (N=313) was obtained at an Army hospital in the eastern United States using survey version II.

Sample 4 (N=83) was obtained at an Army medical facility in the eastern United States using survey version II.

Table 1. BACKGROUND INFORMATION

ITEM		VERSION (Page, Item Number) I	II	III
Your age is: 1 - Less than 20 2 - 20 to 25 3 - 26 to 30 4 - 31 to 40 5 - 41 to 50 6 - 51 to 60 7 - More than 60		14,120	1,1	1,1
Your highest educational level obtained was 1 - Non high school graduate 2 - High school graduate or GED 3 - Some college work 4 - Associate degree or LPN 5 - Bachelors degree or RN 6 - Some graduate work 7 - Masters degree 8 - Doctoral degree		14,121	1,2	1,2
Your sex is: 1 - Male; 2 - Female		14,122	1,3	1,3
Which of the following 'best' describes your marital status 1 - Not married 2 - Married--spouse is a military member 3 - Married--spouse is a civilian 4 - Single parent		14,123	---	---

Table 1. (Continued)

Which of the following best describes your present occupation 1 - Nursing (i.e., BSN, RN, LPN, LVN) 2 - Medical Nursing Technician 3 - Medical Administration-Supervisor/ Managerial 4 - Medical Administration-Technical/ Clerical 5 - Medical Laboratory Technician 6 - Dental Services Administration 7 - Dental Technical/Laboratory Services 8 - Volunteer Worker 9 - Photographic Technician 10 - Other	14,124	---	---
What is your usual work schedule 1 - Day shift, normally stable hours 2 - Swing shift (about 1500-2300) 3 - Night shift (about 2300-0700) 4 - Rotating shift schedule 5 - Day or shift work with irregular/ unstable hours	14,125	---	---
Is your job presently 1 - Full-time regular employee 2 - Part-time regular employee 3 - Full-time voluntary worker 4 - Part-time voluntary worker	15,126	---	---
Total months in this organization is 1 - Less than 1 month 2 - More than 1 month, less than 6 3 - More than 6 months, less than 12 4 - More than 12 months, less than 18 5 - More than 18 months, less than 24 6 - More than 24 months, less than 36 7 - More than 36 months	15,127	1,4	1,4
Total months in present position 1 - Less than 1 month 2 - More than 1 month, less than 6 3 - More than 6 months, less than 12 4 - More than 12 months, less than 18 5 - More than 18 months, less than 24 6 - More than 24 months, less than 36 7 - More than 36 months	15,128	---	---

Table 1. (Continued)

Total months experience in your present occupation 1 - Less than 1 month 2 - More than 1 month, less than 6 3 - More than 6 months, less than 12 4 - Between 1 and 2 years 5 - Between 2 and 3 years 6 - Between 3 and 4 years 7 - More than 4 years	15,129	---	---
How many people do you directly supervise (i.e., those for which you write performance reports) 1 - None 2 - 1 to 2 3 - 3 to 5 4 - 6 to 8 5 - 9 to 12 6 - 13 to 20 7 - 21 or more	15,130	2,5	2,5
You are a (an): 1 - Officer 2 - Airman (Enlisted) 3 - Civilian (GS) 4 - Civilian (Wage Grade Employee) 5 - Non-appropriated Fund (NAF) Employee 6 - Other	16,131	2,6	2,6
Your grade level is 1 - 1 to 2 2 - 3 to 4 3 - 5 to 6 4 - 7 to 8 5 - 9 to 10 6 - 11 to 12 7 - 13 to 14 8 - Senior Executive Service	16,132	2,7	2,7

Table 2. DEMOGRAPHIC STATISTICS FOR SURVEY VERSION I

	SAMPLE 1 (n=142) (%)	SAMPLE 2 (n=245) (%)
AGE:		
Less than 20	5.4	11.9
20 to 25	35.5	51.4
26 to 30	24.7	9.7
31 to 40	17.5	11.9
41 to 50	10.8	5.0
51 to 60	4.2	4.0
More than 60	0.6	1.4
Missing or invalid	1.2	4.7
EDUCATION:		
Non high school graduate	1.8	5.8
High school graduate or GED	26.5	46.8
Some college	53.0	34.5
Associate degree or LPN	9.6	4.3
Bachelors degree or RN	4.2	1.1
Some graduate work	3.0	0.7
Masters degree	1.2	0.7
Doctoral degree	0.0	0.0
Missing or invalid	0.6	6.1
SEX:		
Male	57.8	82.7
Female	36.1	8.3
Missing or invalid	6.1	9.0
MARITAL STATUS:		
Not married	31.3	38.8
Married to military spouse	15.7	4.3
Married to civilian spouse	41.6	43.5
Single parent	7.2	4.7
Missing or invalid	4.2	8.7
WORK SCHEDULE:		
Day shift, stable hours	74.7	65.5
Swing shift (1500-2300)	3.0	14.0
Night shift (2300-0700)	3.0	2.2
Rotating shifts	9.6	4.7
Irregular/unstable hours	6.6	6.1
Missing or invalid	3.0	7.5

Table 2. (Continued)

	SAMPLE 1 (n=142) (%)	SAMPLE 2 (n=245) (%)
OCCUPATION:		
Nursing	7.2	2.5
Medical Nursing Technician	7.8	0.4
Medical Admin (Supervisor/ Manager)	10.2	1.4
Medical Admin (Technical/ Clerical)	27.7	1.4
Med Lab Technician	2.4	1.1
Dental Services Administration	0.6	0.7
Dental Tech/Lab Services	10.4	1.1
Volunteer worker	0.0	1.4
Photographic Technician	0.0	0.0
Other	31.9	89.4
Missing or invalid	1.8	5.4
JOB CATEGORY:		
Fulltime regular employee	91.6	83.8
Parttime regular employee	1.2	1.4
Fulltime volunteer worker	1.2	2.2
Parttime volunteer worker	1.2	2.5
Missing or invalid	4.8	10.1
MONTHS IN THIS ORGANIZATION:		
Less than one	6.0	5.0
1 to 6	13.9	15.8
6 to 12	12.0	15.8
12 to 18	15.7	13.3
18 to 24	10.2	11.5
24 to 36	16.3	10.4
More than 36	24.1	21.6
Missing or invalid	1.8	6.5
MONTHS IN THIS POSITION:		
Less than one	5.4	4.0
1 to 6	24.1	21.9
6 to 12	24.7	19.4
12 to 18	16.3	17.3
18 to 24	6.0	8.6
24 to 36	7.8	9.7
More than 36	13.9	12.9
Missing or invalid	1.8	6.1

Table 2. (Continued)

	SAMPLE 1 (n=142) (%)	SAMPLE 2 (n=245) (%)
MONTHS IN THIS OCCUPATION:		
Less than one	4.8	2.2
1 to 6	10.2	13.3
6 to 12	10.2	11.2
12 to 18	18.7	18.3
18 to 24	9.0	10.8
24 to 36	5.4	7.9
More than 36	39.8	29.9
Missing or invalid	1.8	6.5
NUMBER OF DIRECT SUBORDINATES:		
None	60.2	54.0
1 to 2	10.8	16.9
3 to 5	13.9	11.9
6 to 8	6.0	6.1
9 to 12	4.8	1.4
13 to 20	1.8	1.8
21 or more	0.6	1.4
Missing or invalid	1.8	6.5
SERVICE STATUS:		
Officer	7.8	1.1
Enlisted	49.4	65.5
Civilian (GS)	25.9	2.5
Civilian (WG)	6.6	10.4
Nonappropriated Fund Employee	0.0	0.7
Other	2.4	1.8
Missing or invalid	7.9	18.0
GRADE LEVEL:		
1 to 2	4.8	15.5
3 to 4	44.6	32.7
5 to 6	25.3	21.9
7 to 8	7.2	4.0
9 to 10	4.2	4.3
11 to 12	3.0	1.8
13 to 14	1.2	0.4
Senior Executive Service	0.0	0.0
Missing or invalid	9.6	19.4

Sample 5 (N=199) was obtained at a Department of the Treasury facility in the eastern United States using survey version II.

Sample 6 (N=538) was obtained at a Department of Defense organization in the midwest using survey version II.

Sample 7 (N=86) was obtained from an Air Force transportation squadron in the Rocky Mountain region of the United States using survey version II.

Sample 8 (N=48) was obtained at an Air Force security police organization in the Rocky Mountain region of the United States using survey version II.

Sample 9 (N=113) was obtained from an Air Force civil engineering squadron in the Rocky Mountain region of the United States using survey version II.

Sample 10 (N=419) was obtained at a Strategic Air Command installation in the western United States using survey version II.

Sample 11 (N=484) was obtained at a Strategic Air Command installation in the western United States using survey version II.

Sample 12 (N=97) was obtained at an Air National Guard facility on the west coast of the United States using survey version III.

Standard Procedures

The standard procedure used in collecting each sample was an on-site administration to groups of from 20 to 200 respondents. Survey administrators explained to the respondents in general terms the purpose to which the data would be put. The administrators briefed each group that participation in the survey was voluntary and assured them that their responses to survey items would remain anonymous. Some survey

administrations additionally collected social security numbers to allow merging of survey data with additional measures which were taken. Organizations' management received feedback on the results of the surveys in such a manner as to maintain the anonymity of individual responses.

Table 3. DEMOGRAPHIC STATISTICS FOR SURVEY VERSIONS II & III

	SAMPLE 3 (N=313) (%)	SAMPLE 4 (N=83) (%)	SAMPLE 5 (N=199) (%)	SAMPLE 6 (N=538) (%)	SAMPLE 7 (N=86) (%)
AGE:					
Less than 20	2.8	0.9	0.3	0.4	4.3
20 to 25	11.6	3.7	0.7	11.4	29.1
26 to 30	16.2	7.5	7.3	14.5	16.2
31 to 40	28.6	31.8	29.2	26.5	20.5
41 to 50	20.6	29.9	32.3	23.6	14.5
51 to 60	15.7	19.6	24.0	20.2	12.8
More than 60	4.1	6.5	5.9	2.5	2.6
Missing or invalid	0.3	0.0	0.3	0.9	0.0
EDUCATION:					
Non high school graduate	10.6	20.6	10.8	1.0	5.1
High school graduate or GED	43.0	55.1	34.7	16.9	47.9
Some college	31.2	19.6	35.4	45.8	30.8
Associate degree or LPN	5.2	0.9	10.1	10.7	7.7
Bachelors degree or RN	5.9	0.9	5.6	15.5	5.1
Some graduate work	2.3	0.9	2.1	5.3	2.6
Masters degree	0.5	0.0	0.7	3.7	0.9
Doctoral degree	0.8	0.9	0.7	0.1	0.0
Missing or invalid	0.5	0.9	0.0	1.0	0.0
SEX:					
Male	62.4	96.3	89.2	39.6	72.6
Female	35.6	2.8	9.7	58.7	27.4
Missing or invalid	2.1	0.9	1.0	1.5	0.0

Table 3. (Continued)

	SAMPLE 8 (N=48) (%)	SAMPLE 9 (N=113) (%)	SAMPLE 10 (N=419) (%)	SAMPLE 11 (N=484) (%)	SAMPLE 12 (N=97) (%)
AGE:					
Less than 20	16.9	4.6	5.5	3.4	0.0
20 to 25	38.0	36.2	29.5	32.2	7.8
26 to 30	25.4	15.3	30.0	28.5	24.3
31 to 40	18.3	19.4	23.0	23.8	30.1
41 to 50	1.4	12.2	7.2	6.8	31.1
51 to 60	0.0	8.7	3.5	3.9	5.8
More than 60	0.0	3.1	1.3	1.1	1.0
Missing or invalid	0.0	0.5	0.0	0.3	0.0
EDUCATION:					
Non high school graduate	1.4	2.0	1.5	0.5	2.9
High school graduate or GED	36.6	39.8	33.9	28.3	13.6
Some college	50.7	44.4	38.3	39.7	50.5
Associate degree or LPN	7.0	6.6	8.3	11.0	19.4
Bachelors degree or RN	1.4	3.1	3.7	4.9	6.8
Some graduate work	1.4	3.1	6.6	7.9	2.9
Masters degree	1.4	1.0	7.6	7.5	1.0
Doctoral degree	0.0	0.0	0.0	0.0	2.9
Missing or invalid	0.0	0.0	0.2	0.3	0.0
SEX:					
Male	78.9	85.7	89.5	88.6	92.2
Female	19.7	12.2	10.3	10.1	6.8
Missing or invalid	1.4	2.0	0.2	1.4	1.0

Table 3. (Continued)

	SAMPLE 3 (N=313) (%)	SAMPLE 4 (N=83) (%)	SAMPLE 5 (N=199) (%)	SAMPLE 6 (N=538) (%)	SAMPLE 7 (N=86) (%)
MONTHS IN THIS ORGANIZATION:					
Less than one	2.8	0.9	0.3	1.4	0.0
1 to 6	9.3	2.8	1.4	10.4	13.7
6 to 12	9.0	0.9	3.5	14.1	15.4
12 to 18	8.2	3.7	4.2	10.7	9.4
18 to 24	4.6	3.7	0.7	5.6	16.2
24 to 36	11.6	7.5	7.6	8.4	17.1
More than 36	53.6	79.4	80.9	48.7	28.2
Missing or invalid	0.8	0.9	1.4	0.7	0.0
NUMBER OF DIRECT SUBORDINATES:					
None	87.1	88.8	80.6	90.4	71.8
1 to 2	4.6	3.7	1.4	1.1	11.1
3 to 5	4.4	2.8	5.2	2.2	9.4
6 to 8	0.8	0.0	3.5	2.7	3.4
9 to 12	0.5	0.0	4.2	0.8	1.7
13 to 20	1.8	2.8	2.1	1.9	0.9
21 or more	0.0	0.0	3.1	0.5	0.9
Missing or invalid	0.8	1.9	0.0	0.3	0.9
SERVICE STATUS:					
Officer	3.4	0.9	2.1	0.5	2.6
Enlisted	15.2	0.0	0.7	0.0	58.1
Civilian (GS)	33.0	2.8	22.2	96.7	16.2
Civilian (WG)	46.4	93.5	63.5	1.6	22.2
Nonappropriated Fund Employee	1.8	0.0	0.0	0.0	0.0
Other	0.0	2.8	9.7	0.7	0.9
Missing or invalid	0.3	0.0	1.7	0.4	0.0

Table 3. (Continued)

	SAMPLE 8 (N=48) (%)	SAMPLE 9 (N=113) (%)	SAMPLE 10 (N=419) (%)	SAMPLE 11 (N=484) (%)	SAMPLE 12 (N=97) (%)
MONTHS IN THIS ORGANIZATION:					
Less than one	0.0	2.6	2.2	1.6	1.0
1 to 6	16.9	16.3	15.1	10.5	1.9
6 to 12	32.4	17.3	20.8	15.2	2.9
12 to 18	11.3	12.8	12.3	14.1	3.9
18 to 24	12.7	8.7	8.1	14.3	8.7
24 to 36	11.3	15.3	11.6	14.7	7.8
More than 36	15.5	27.0	29.8	29.3	73.8
Missing or invalid	0.0	0.0	0.0	0.3	0.0
NUMBER OF DIRECT SUBORDINATES:					
None	50.7	71.9	61.5	61.3	75.5
1 to 2	25.4	9.7	18.0	18.3	5.9
3 to 5	14.1	13.3	13.8	13.3	5.9
6 to 8	4.2	2.0	3.3	3.3	7.8
9 to 12	2.8	2.6	1.3	1.5	3.9
13 to 20	2.8	0.5	0.6	1.0	1.0
21 or more	0.0	0.0	1.3	1.1	0.0
Missing or invalid	0.0	0.0	0.2	0.3	0.0
SERVICE STATUS:					
Officer	2.8	3.6	14.4	15.1	1.9
Enlisted	95.8	64.3	69.8	69.3	10.7
Civilian (GS)	1.4	15.3	8.1	7.5	38.8
Civilian (WG)	0.0	15.3	7.6	6.9	46.6
Nonappropriated Fund Employee	0.0	0.0	0.0	0.0	0.0
Other	0.0	1.5	0.0	0.8	1.9
Missing or invalid	0.0	0.0	0.2	0.4	0.0

Table 3. (Continued)

	SAMPLE 3 (N=313) (%)	SAMPLE 4 (N=83) (%)	SAMPLE 5 (N=199) (%)	SAMPLE 6 (N=538) (%)	SAMPLE 7 (N=86) (%)
GRADE LEVEL:					
1 to 2	3.4	0.9	1.0	1.0	4.3
3 to 4	26.3	2.8	8.3	20.6	34.2
5 to 6	21.6	4.7	47.6	21.9	36.8
7 to 8	4.6	1.9	15.6	12.3	15.4
9 to 10	35.3	80.4	17.0	21.4	3.4
11 to 12	5.4	6.5	7.3	19.5	2.6
13 to 14	0.8	0.9	2.4	2.7	0.9
Senior Executive Service	0.3	0.0	0.0	0.0	0.0
Missing or invalid	2.3	1.9	0.7	0.5	2.6

	SAMPLE 8 (N=48) (%)	SAMPLE 9 (N=113) (%)	SAMPLE 10 (N=419) (%)	SAMPLE 11 (N=484) (%)	SAMPLE 12 (N=97) (%)
GRADE LEVEL:					
1 to 2	5.6	9.7	6.6	5.0	1.0
3 to 4	50.7	33.2	40.1	44.6	5.8
5 to 6	31.0	25.5	36.1	33.4	9.7
7 to 8	7.0	8.7	8.3	9.5	13.6
9 to 10	0.0	13.3	5.3	4.5	43.7
11 to 12	1.4	6.1	2.2	1.8	18.4
13 to 14	0.0	0.5	0.4	0.7	7.8
Senior Executive Service	0.0	0.0	0.0	0.0	0.0
Missing or invalid	4.2	3.1	0.9	0.5	0.0

III. Results

This chapter presents the specific findings of the current research. It introduces each of the scales included in the AFIT Survey of Work Attitudes with general comments about their origins and some overall observations. Composition details and descriptive statistics on each of the scales are presented in tabular form. This material includes scoring protocols, actual items within the scales, location of the scale items in the survey instrument, and means, standard deviations, and reliability coefficients from each of the twelve samples.

The actual computations were performed using the Statistical Package for the Social Sciences (SPSS) on the AFIT Harris 800 computer. The SPSS RELIABILITY function provided all the values, using listwise deletion of missing data in which 'cases with missing values [were] automatically eliminated from all calculations of coefficients' (Specht & Bubolz, 1981). The 'alphas' referenced in the tables are coefficient alphas as described by Cronbach (1951). The 'grand averages' in the tables are weighted averages of the sample sizes, means, standard deviations, and coefficient alphas over all the samples available for that particular scale.

Satisfaction

The satisfaction measures in Version I are taken directly from the Minnesota Satisfaction Questionnaire (MSQ), a general discussion of which can be found in Lofquist and Dawis (1969). The specific findings from the two times these scales were used as part of the ASWA appear in Tables 4, 5, and 6. Each of these measures are scored on a 5-point Likert scale

ranging from 'very dissatisfied' to 'very satisfied.' Table 4 deals with extrinsic satisfaction, factors external to the individual which influence his or her satisfaction. It includes six items. Table 5 deals with intrinsic satisfaction, factors internal to the individual which influence his or her satisfaction. It includes 12 items. Table 6 contains three items dealing with job satisfaction in general.

The job satisfaction measure used in Versions II and III is adapted directly from the work of Andrews and Withey (1976). This measure is scored on a 7-point scale ranging from 'delighted' at the low end, through 'mixed' at the midpoint, to 'terrible' at the high end. In order to orient the scale in parallel with other scales in the ASWA, scoring must be reversed on each of the five items contained in this measure. This measure's specifics are presented in Table 7.

Self-Appraisal

The measures described by Tables 8, 9, and 10 are different versions of self-appraisal of performance used in version I of the ASWA. The specific measures are of the desktop variety; that is, they were formulated by the originators of the AFIT Survey of Work Attitudes based upon their experience and reasoning. However, Thornton (1980) gives a general discussion of self-appraisals which is informative in this area.

Each item in Tables 8, 9, and 10 is scored on a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.' The measure in Table 8 is of perceived work-group performance. It is composed of five items measuring the respondent's perception of his or her work-group's efficiency and effectiveness. Table 9 reports a 5-item measure of the respondent's perception of his or her own performance. Table 10 contains

Table 4. EXTRINSIC SATISFACTION (MSQ)
(Lofquist & Dawis, 1969)

[Likert scale ranging from very dissatisfied (1) to very satisfied (5)] ITEM	VERSION (Page, Item Number) I	II	III
The way my boss handles his men	1,5	---	---
The competence of my supervisor when he makes decisions	1,6	---	---
The way company policies are put into practice	1,12	---	---
My pay and the amount of work I do	1,13	---	---
The chances for advancement on the job	1,14	---	---
The praise I get for doing a good job	1,15	---	---

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	18.56	5.17	.79
SAMPLE 2	245	17.28	4.88	.74
GRAND AVERAGES:	194	17.75	4.99	.76

Table 5. INTRINSIC SATISFACTION (MSQ)
(Lofquist & Dawis, 1969)

[Likert scale ranging from very dissatisfied (1) to very satisfied (5)] ITEM	VERSION (Page, Item Number) I	II	III
Being able to keep busy all the time	1,1	---	---
The chance to work alone on the job	1,2	---	---
The chance to do different things from time to time	1,3	---	---
The chance to be 'somebody' in the community	1,4	---	---
Being able to do things that didn't go against my conscience	1,7	---	---
The way my job provides for steady employment	1,8	---	---
The chance to do things for other people	1,9	---	---
The chance to tell people what to do	1,10	---	---
The chance to do something that makes use of my abilities	1,11	---	---
The freedom to use my own judgment	1,15	---	---
The chance to try my own methods of doing the job	1,16	---	---
The feeling of accomplishment I got from the job	1,20	---	---

Table 5. (Continued)

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	44.25	8.21	.85
SAMPLE 2	245	42.78	7.91	.83
GRAND AVERAGES:	194	43.32	8.02	.84

Table 6. GENERAL SATISFACTION (MSQ)
(Lofquist & Dawis, 1969)

[Likert scale ranging from very dissatisfied (1) to very satisfied (5)] ITEM	VERSION (Page, Item Number) I	II	III
The working conditions	1,17	---	---
The way my co-workers got along with one another	1,18	---	---
Enjoying the work itself	1,21	---	---

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	10.54	2.69	.59
SAMPLE 2	245	10.67	2.45	.53
GRAND AVERAGES:	194	10.62	2.54	.55

Table 7. JOB SATISFACTION
(Andrews & Withey, 1976)

[Seven-point scale ranging from delighted (1) thru mixed (4) to terrible (7)] ITEM	VERSION (Page, Version Number) I	II	III
How do you feel about your job *	---	3,8	3,8
How do you feel about the people you work with--your co-workers *	---	3,9	3,9
How do you feel about the work you do on your job--the work itself *	---	3,10	3,10
What is it like where you work--the physical surroundings, the hours, the amount of work you are asked to do *	---	3,11	3,11
How do you feel about what you have available for doing your job--I mean equipment, information, good supervision, and so on *	---	3,12	3,12

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	25.56	4.40	.78
SAMPLE 4	83	26.34	4.00	.77
SAMPLE 5	199	23.45	4.69	.78
SAMPLE 6	538	24.63	4.24	.78
SAMPLE 7	86	23.55	4.54	.74
SAMPLE 8	48	26.42	4.12	.75
SAMPLE 9	113	24.42	4.58	.73
SAMPLE 10	419	23.88	4.50	.78
SAMPLE 11	484	23.69	5.05	.80
SAMPLE 12	97	24.32	3.74	.66
GRAND AVERAGES:	238	24.36	3.49	.77

Table 8. PERCEIVED WORK-GROUP PERFORMANCE

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Item Number) I	II	III
The quantity of output of your work-group is very high	2,22	---	---
The quality of output of your work-group is very high	2,23	---	---
Your work-group members always get maximum output from the available resource (e.g., money, materiel, personnel)	2,24	---	---
Your work-group members do an excellent job anticipating problems that may come up and either preventing them from occurring or minimizing their effects	2,25	---	---
When high priority work arises (e.g., 'crash projects' and sudden schedule changes) your work-group members do an excellent job in handling and adapting to these situations	2,26	---	---

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	26.11	6.46	.84
SAMPLE 2	245	24.98	6.56	.80
GRAND AVERAGES:	194	25.39	6.52	.81

Table 9. PERCEIVED SELF-PERFORMANCE

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Item Number) I	II	III
The quantity of your output is very high	3,27	---	---
The quality of your output is very high	3,28	---	---
You always get maximum output from the available resources (e.g., money, materiel, personnel)	3,29	---	---
You do an excellent job anticipating problems that may come up and either preventing them from occurring or minimizing their effects	3,30	---	---
When high priority work arises (e.g., 'crash projects' and sudden schedule changes) you do an excellent job in handling and adapting to these situations	3,31	---	---

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	29.46	4.77	.81
SAMPLE 2	245	27.56	5.10	.79
GRAND AVERAGES:	194	28.26	4.98	.80

Table 10. SUPERVISOR ASSESSMENT OF YOUR PERFORMANCE (Version I)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
Your supervisor considers the quantity of your output to be very high	13,113	---	---
Your supervisor considers the quality of your output to be very high	13,114	---	---
Your supervisor believes you get maximum output from the available resources (e.g., money, materiel, personnel)	13,115	---	---
Your supervisor believes you do an excellent job anticipating problems that may come up and either preventing them from occurring or minimizing their effects	13,116	---	---
Under situations when high priority work occurs (e.g., 'crash projects' and sudden schedule changes) your supervisor believes you do an excellent job anticipating problems that may come up and either preventing them from occurring or minimizing their effects	13,117	---	---

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	26.01	5.93	.89
SAMPLE 2	245	24.58	6.19	.90
GRAND AVERAGES:	194	25.10	6.09	.90

information on a measure of the respondent's perception of his or her supervisor's assessment of the respondent's performance. This measure also contains five items.

The self-appraisal measure used in Versions II and III is described by Steel and Ovalle (1984a). It is a 5-item measure which specifically references shared feedback of supervisor and subordinate concerning the subordinate's efficiency and effectiveness on the job. The scale in Table 10 was the conceptual forebearer of this measure. The measure is scored on a 7-point scale ranging from 'far worse' at the low end, through 'about average' at the midpoint, to 'far better' at the high end. The details of this scale are provided in Table 11.

Organizational Commitment

The organizational commitment scale was taken verbatim from the Organizational Commitment Questionnaire (OCQ). This measure is designed to determine how individuals feel about the company or organization for which they work. It is composed of 15 items which are scored on a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.' Mowday, Steers, and Porter (1979) provide a literature review of this measure which addresses reliability, validty, factor analysis, etc. The findings of the current research are in Table 12.

Job Involvement

These three scales attempt to measure how involved individuals are in their job or the work they do. Saleh and Hosek (1976) discuss these specific scales. Table 13 contains archival statistics for a 5-item

Table 11. SUPERVISOR ASSESSMENT OF YOUR PERFORMANCE
(Versions II & III)

[Seven-point scale ranging from far worse (1) thru about average (4) to far better (7)] ITEM	VERSION (Page, Version Number) I	II	III
Compared with other employees doing similar work, your supervisor considers the quantity of the work you produce to be	---	4,13	4,13
Compared with other employees doing similar work, your supervisor considers the quality of the work you produce to be	---	4,14	4,14
Compared with other employees performing similar work, your supervisor believes the efficiency of your use of available resources (money, materials, personnel) in producing a work product is	---	4,15	4,15
Compared with other employees performing similar work, your supervisor considers your ability in anticipating problems and either preventing or minimizing their effects to be	---	4,16	4,16
Compared with other employees performing similar work, your supervisor believes your adaptability/flexibility in handling high-priority work (e.g., 'crash projects' and sudden schedule changes) is	---	4,17	4,17

Table 11. (Continued)

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	25.38	5.13	.92
SAMPLE 4	83	23.81	4.45	.92
SAMPLE 5	199	25.24	5.00	.93
SAMPLE 6	538	25.23	4.85	.92
SAMPLE 7	86	25.80	4.99	.94
SAMPLE 8	48	25.90	4.70	.93
SAMPLE 9	113	25.03	4.99	.90
SAMPLE 10	419	25.19	5.05	.93
SAMPLE 11	484	25.79	5.15	.93
SAMPLE 12	97	26.15	5.02	.91
GRAND AVERAGES:	238	25.37	5.00	.92

Table 12. ORGANIZATIONAL COMMITMENT (OCQ)
(Mowday et al, 1979)

[Likert scale ranging fron strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful	11,98	5,20	5,20
I talk up this organization to my friends as a great organization to work for	11,99	6,21	6,21
I feel very little loyalty to this organization *	11,100	6,22	6,22
I would accept almost any type job assignment in order to keep working for this organization	11,101	6,23	6,23
I find that my values and the organization's values are very similar	11,102	6,24	6,24
I am proud to tell others that I am part of this organization	12,103	6,25	6,25
I could just as well be working for a different organization as long as the type of work was similar *	12,104	6,26	6,26
This organization really inspires the very best in me in the way of job performance	12,105	6,27	6,27
It would take very little change in my present circumstances to cause me to leave this organization *	12,106	6,28	6,28
I am extremely glad that I chose this organization to work for, over others I was considering at the time I joined	12,107	6,29	6,29
There's not too much to be gained by sticking with this organization indefinitely *	12,108	6,30	6,30

Table 12. (Continued)

Often, I find it difficult to agree with this organization's policies on important matters relating to its employees *	12,109	6,31	6,31
I really care about the fate of this organization	12,110	6,32	6,32
For me this is the best of all possible organizations for which to work	12,111	6,33	6,33
Deciding to work for this organization was a definite mistake on my part *	12,112	6,34	6,34

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	67.58	18.72	.90
SAMPLE 2	245	59.42	16.87	.88
SAMPLE 3	313	70.70	18.46	.89
SAMPLE 4	83	76.71	17.68	.89
SAMPLE 5	199	64.05	19.80	.90
SAMPLE 6	538	70.56	18.14	.90
SAMPLE 7	86	62.84	18.57	.89
SAMPLE 8	48	66.19	16.24	.88
SAMPLE 9	113	59.96	20.53	.91
SAMPLE 10	419	62.08	18.26	.90
SAMPLE 11	484	60.10	18.37	.90
SAMPLE 12	97	70.98	18.79	.91
GRAND AVERAGES:	231	65.31	18.36	.90

Table 13. JOB INVOLVEMENT (PARTICIPATION IN WORK)
(Saleh & Hosek, 1976)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
I often have to use the skills I have learned for my job	4,32	7,35	7,35
I often have a chance to try out my own ideas	4,33	7,36	7,36
I often have a chance to do things my own way	4,34	7,37	7,37
I often have a chance to do the kinds of things that I am best at	4,35	7,38	7,38
I often feel at the end of the day that I've accomplished something	4,36	7,39	7,39

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	24.15	7.35	.83
SAMPLE 2	245	23.38	7.23	.84
SAMPLE 3	313	26.56	6.44	.78
SAMPLE 4	83	29.41	4.95	.76
SAMPLE 5	199	22.07	8.43	.85
SAMPLE 6	538	23.46	7.10	.81
SAMPLE 7	86	24.08	7.42	.83
SAMPLE 8	48	23.63	7.81	.86
SAMPLE 9	113	23.13	7.95	.83
SAMPLE 10	419	24.10	7.33	.85
SAMPLE 11	484	23.93	7.39	.86
SAMPLE 12	97	25.93	5.35	.69
GRAND AVERAGES:	231	24.19	7.16	.82

measure of the respondent's participation in work. Table 14 has statistics for a 5-item measure of the respondent's central life interest. Table 15 reports a 3-item measure of the respondent's self-concept. Each item in the three measures is scored on a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.'

Participation in Decision-Making

These scales were developed by Steel and Mento (in press). They are designed to measure the respondent's perceived degree of influence over decisions. Table 16 reports statistics on a preliminary 4-item measure used in version I of the ASWA. Table 17 contains statistics for the finalized 5-item measure in versions II and III discussed by Steel and Mento (in press). Both measures are scored on a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.'

Stress

This scale was developed on an ad hoc basis to measure the amount of personal stress employees feel on the job. An example of stress measures, though not one specifically used in the ASWA scale, is available from Hendrix, Ovalle, and Troxler (1985). The current measure contains three items scored on a Likert scale ranging from 'strongly disagree' to 'strongly agree.' The results of the current research are presented in Table 18.

Table 14. JOB INVOLVEMENT (CENTRAL LIFE INTEREST)
(Saleh & Hosek, 1976)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
The most important things that happen to me involve my work	4,37	7,40	7,40
The most important things I do involve my work	4,38	7,41	7,41
The major satisfaction in my life comes from my job	4,39	7,42	7,42
The activities which give me the greatest pleasure and personal satisfaction involve my job	4,40	7,43	7,43
I live, eat, and breathe my job	4,41	7,44	7,44

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	16.37	8.09	.91
SAMPLE 2	245	15.01	8.08	.91
SAMPLE 3	313	16.34	8.14	.91
SAMPLE 4	83	18.40	8.18	.91
SAMPLE 5	199	14.85	8.65	.92
SAMPLE 6	538	13.21	6.91	.89
SAMPLE 7	86	15.50	8.20	.93
SAMPLE 8	48	18.60	8.24	.93
SAMPLE 9	113	15.68	8.56	.93
SAMPLE 10	419	15.30	7.82	.91
SAMPLE 11	484	14.41	7.33	.90
SAMPLE 12	97	16.62	7.30	.89
GRAND AVERAGES:	231	15.07	7.73	.91

Table 15. JOB INVOLVEMENT (SELF-CONCEPT)
(Saleh & Hosek, 1976)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
How well I perform on my job is extremely important to me	4,43	7,46	7,46
I feel badly if I don't perform well on my job	4,44	7,47	7,47
I am very personally involved in my work	4,45	7,48	7,48

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	17.82	2.94	.61
SAMPLE 2	245	16.84	3.62	.75
SAMPLE 3	313	18.00	3.06	.68
SAMPLE 4	83	18.12	3.10	.75
SAMPLE 5	199	17.49	3.63	.74
SAMPLE 6	538	18.02	2.97	.73
SAMPLE 7	89	17.30	3.45	.74
SAMPLE 8	48	17.27	3.36	.78
SAMPLE 9	113	17.94	3.30	.76
SAMPLE 10	419	17.77	3.04	.73
SAMPLE 11	484	17.28	3.41	.78
SAMPLE 12	97	18.66	2.58	.57
GRAND AVERAGES:	231	17.68	3.20	.73

Table 16. PARTICIPATION IN DECISION-MAKING (Version I)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
Within my work-group the people most affected by decisions frequently participate in making the decisions	9,68	8,50	8,50
In my work-group there is a great deal of opportunity to be involved in resolving problems which affect the group	9,69	8,51	8,51
My work-group is very effective in making decisions	9,70	---	---
My work-group is very effective in the process of group problem solving (i.e., clearly defining/specifying the problem(s), developing and evaluating alternative solutions, and selecting, implementing, and evaluating a solution)	9,71	---	---

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	16.52	5.95	.80
SAMPLE 2	245	16.61	6.14	.83
GRAND AVERAGES:	194	16.58	6.07	.82

Table 17. PARTICIPATION IN DECISION-MAKING
(Versions II & III)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
Within my work-group the people most affected by decisions frequently participate in making the decisions	9,68	8,50	8,50
In my work-group there is a great deal of opportunity to be involved in resolving problems which affect the group	9,69	8,51	8,51
I am allowed to participate in decisions regarding my job	---	8,52	8,52
I am allowed a significant degree of influence in decisions regarding my work	---	8,53	8,53
My supervisor usually asks for my opinions and thoughts in decisions affecting my work	---	8,54	8,54

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	20.83	7.73	.82
SAMPLE 4	83	22.30	6.56	.74
SAMPLE 5	199	17.47	9.11	.88
SAMPLE 6	538	19.47	8.38	.89
SAMPLE 7	86	21.57	7.88	.85
SAMPLE 8	48	22.65	8.39	.90
SAMPLE 9	113	21.40	7.83	.86
SAMPLE 10	419	22.19	7.95	.88
SAMPLE 11	484	21.32	7.75	.87
SAMPLE 12	97	21.06	8.54	.89
GRAND AVERAGES:	238	20.73	8.05	.87

Table 18. EMPLOYEE STRESS

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
My work (job) causes me a great deal of stress and anxiety *	9,75	8,55	8,55
Relations with the people I work with (e.g., co-workers, supervisor, subordinates) cause me a great deal of stress and anxiety *	---	8,56	8,56
General aspects of the organization I work for (e.g., policies and procedures, general working conditions) tend to cause me a great deal of stress and anxiety *	---	8,57	8,57

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	13.95	4.99	.77
SAMPLE 4	83	15.63	4.67	.75
SAMPLE 5	199	13.15	5.23	.82
SAMPLE 6	538	13.71	4.78	.78
SAMPLE 7	86	13.55	4.71	.71
SAMPLE 8	48	12.48	3.82	.68
SAMPLE 9	113	12.47	4.63	.71
SAMPLE 10	419	13.35	4.81	.77
SAMPLE 11	484	12.72	4.78	.78
SAMPLE 12	97	12.23	5.00	.81
GRAND AVERAGES:	238	13.35	4.83	.77

Trust

These scales were designed to measure how much interpersonal trust exists in the workplace. Rosenberg (1957) developed the scale used in the AFIT Survey of Work Attitudes.

Tables 19 and 20 present the findings of the current research. Table 19 reports archival statistics for the 3-item measure used in version I of the ASWA. Table 20 presents statistics for the 3-item measure used in versions II and III. Both measures assign item scores using a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.'

Group Cohesion

This scale measures how strong cohesion is among a respondent's work-group. The measure contains three items which are scored on a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.' A discussion of the reliability of this scale is available in Steel, Mento, Dilla, Ovalle, and Lloyd (1985). Archival statistics from the current research are in Table 21.

Supervisor's Behavior: Relationship/ Task Orientation

These scales attempt to measure two aspects of a supervisor's behavior as perceived by the respondent to the survey. Specifically, these aspects are the supervisor's emphasis on task requirements (i.e., task orientation) and orientation to people (i.e., relationship orientation). The reliability of these scales is discussed by Steel et al (1985). Tables 22, 23, and 24 document the findings of the current research. Table 22 provides archival statistics for the measure used in

Table 19. TRUST (Version I)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)]	VERSION (Page, Version Number) I	II	III
ITEM			
In general, people tell the truth, even when they know they could benefit by lying	9,77	---	---
Generally speaking, most people are inclined to look out for themselves rather than help others *	9,78	---	---
If given the chance, most people will try to take advantage of others rather than try to be fair *	9,79	---	---

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	12.47	3.85	.57
SAMPLE 2	245	11.09	3.78	.61
GRAND AVERAGES:	194	11.60	3.81	.60

Table 20. TRUST (Versions II & III)
(Rosenberg, 1957)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
Most people are not always straight-forward and honest when their own interests are involved *	---	8,58	8,58
In these competitive times one has to be alert or someone is likely to take advantage of you *	---	8,59	8,59
It is safe to believe that in spite of what people say, most people are primarily interested in their own welfare *	---	8,60	8,60

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	8.45	3.96	.66
SAMPLE 4	83	9.06	4.09	.75
SAMPLE 5	199	7.71	3.81	.66
SAMPLE 6	538	9.19	3.77	.69
SAMPLE 7	86	8.28	3.66	.59
SAMPLE 8	48	8.50	3.89	.74
SAMPLE 9	113	8.44	3.68	.52
SAMPLE 10	419	8.65	3.84	.75
SAMPLE 11	484	8.80	3.97	.72
SAMPLE 12	97	8.07	3.63	.68
GRAND AVERAGES:	238	8.66	3.85	.69

Table 21. GROUP COHESION

[Likert scale ranging from strongly disagree (1) to strongly agree (7)]	VERSION (Page, Version Number) I	II	III
ITEM			
There is a high spirit of teamwork among my co-workers	9,80	8,61	8,61
Members of my work group take a personal interest in one another	9,81	8,62	8,62
If I had a chance to do the same kind of work for the same pay in another work group, I would stay here in this work group	9,82	9,63	9,63

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	13.88	4.49	.69
SAMPLE 2	245	14.08	4.26	.71
SAMPLE 3	313	13.44	5.19	.81
SAMPLE 4	83	14.48	4.82	.79
SAMPLE 5	199	12.30	4.83	.69
SAMPLE 6	538	13.85	4.66	.77
SAMPLE 7	86	13.31	5.02	.76
SAMPLE 8	48	14.31	4.39	.73
SAMPLE 9	113	12.82	4.87	.78
SAMPLE 10	419	13.46	4.38	.75
SAMPLE 11	484	12.81	4.61	.76
SAMPLE 12	97	12.99	4.88	.80
GRAND AVERAGES:	230	13.41	4.66	.76

Table 22. SUPERVISOR BEHAVIOR (Version I)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
My supervisor represents the group at all times	10,86	---	---
My supervisor performs well under pressure	10,87	---	---
My supervisor is a good planner	10,88	---	---

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	14.26	4.80	.81
SAMPLE 2	245	13.37	5.21	.84
GRAND AVERAGES:	194	13.70	5.06	.83

Table 23. SUPERVISOR RELATIONSHIP ORIENTATION (Versions II & III)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)]	VERSION (Page, Version Number) I	II	III
ITEM			
My immediate supervisor makes an effort to help people in the work group with their personal problems	---	9,64	9,64
My immediate supervisor seeks the advice of our work group on important matters before going ahead	---	9,66	9,66

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	8.67	3.56	.69
SAMPLE 4	83	8.46	3.38	.66
SAMPLE 5	199	6.85	3.79	.71
SAMPLE 6	538	8.41	3.49	.72
SAMPLE 7	86	9.09	3.31	.80
SAMPLE 8	48	10.25	3.04	.69
SAMPLE 9	113	9.51	3.21	.63
SAMPLE 10	419	9.30	3.27	.74
SAMPLE 11	484	8.77	3.37	.75
SAMPLE 12	97	7.82	3.27	.69
GRAND AVERAGES:	238	8.64	3.42	.72

Table 24. SUPERVISOR TASK ORIENTATION (Versions II & III)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)]	VERSION (Page, Version Number) I	II	III
ITEM			
My immediate supervisor insists that members of our work group follow to the letter all policies and procedures handed down to him	---	9,65	9,65
My immediate supervisor pushes the people under him (or her) to insure they are working up to capacity	---	9,67	9,67

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	8.14	2.96	.46
SAMPLE 4	83	7.84	2.61	.31
SAMPLE 5	199	9.12	3.28	.50
SAMPLE 6	538	8.16	3.01	.50
SAMPLE 7	86	8.87	2.59	.44
SAMPLE 8	48	9.67	2.75	.55
SAMPLE 9	113	9.32	2.80	.50
SAMPLE 10	419	8.93	2.72	.50
SAMPLE 11	484	8.56	2.77	.50
SAMPLE 12	97	7.88	2.95	.51
GRAND AVERAGES:	238	8.54	2.88	.49

version I of the ASWA. Table 23 reports statistics for the measure of supervisor relationship orientation which appears in versions II and III. Table 24 presents statistics for the measure of supervisor task orientation in versions II and III. Each measure contains three items which are scored against a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.'

Organizational Communication

These items measure how freely information flows within the respondent's organization. Steel et al (1985) discuss the reliability of these items.

The current research results appear in Tables 25 and 26. Table 25 presents archival statistics for the 3-item organizational communication climate measure used in ASWA version I while Table 26 does the same for the 4-item measure used in versions II and III. Both measures are scored against a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.'

Goal Setting

The goal setting scales are designed to measure the clarity, difficulty, and realism of goals that guide the respondent's work. Ivancevich and McMahon (1977) developed the clarity and difficulty scales that appear in versions II and III of the AFIT Survey of Work Attitudes. The current research results are presented in Tables 27 through 30. Table 27 presents statistics on the measure of work goals used in version I of the ASWA. This measure contains three items and is scored on a 7-point scale ranging from 'not at all' at the low end, through 'to a

Table 25. ORGANIZATIONAL COMMUNICATION CLIMATE
(Version I)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
My organization provides all the necessary information for me to do my job effectively	10,89	9,68	9,68
My work group is usually aware of important events and situations	10,90	9,69	9,69
My supervisor asks members of my work group for our ideas on task improvements	10,91	---	---

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	14.13	4.08	.63
SAMPLE 2	245	13.19	4.08	.65
GRAND AVERAGES:	194	13.53	4.08	.64

Table 26. ORGANIZATIONAL COMMUNICATION CLIMATE
(Versions II & III)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
My organization provides all the necessary information for me to do my job effectively	10,89	9,68	9,68
My work group is usually aware of important events and situations	10,90	9,69	9,69
The people I work with make my job by sharing their ideas and opinions with me	---	9,70	9,70
People in my work group are never afraid to speak their minds about issues and problems that affect them	---	9,71	9,71

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	18.73	5.71	.74
SAMPLE 4	83	19.40	5.43	.74
SAMPLE 5	199	16.50	6.06	.72
SAMPLE 6	538	18.53	5.36	.71
SAMPLE 7	86	19.20	4.97	.61
SAMPLE 8	48	19.92	4.88	.70
SAMPLE 9	113	18.62	5.83	.75
SAMPLE 10	419	18.94	4.81	.65
SAMPLE 11	484	18.28	5.13	.69
SAMPLE 12	97	17.86	5.35	.65
GRAND AVERAGES:	238	18.47	5.32	.70

Table 27. WORK GOALS (Version I)

[Seven-point incremental scale ranging from not at all (1) thru to a moderate extent (4) to to a very great extent (7)]	VERSION (Page, Version Number) I	II	III
ITEM			
To what extent do you know exactly what is expected of you in performing your job	10,92	---	---
To what extent are your job performance goals difficult to accomplish	10,93	---	---
To what extent are your job performance goals realistic	10,94	---	---

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	14.13	2.57	.10
SAMPLE 2	245	13.85	2.61	.24
GRAND AVERAGES:	194	13.95	2.60	.19

moderate degree' at the midpoint, to 'to a very great extent' at the high end. Tables 28 through 30 contain statistics for the measures of goal clarity, difficulty, and realism, respectively, which appear in versions II and III of the ASWA. The measure in Table 28 contains four items, the one in Table 29 contains five items, and the measure in Table 30 contains four items. All three measures are scored against a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.'

Job Characteristics

The job characteristics scales attempt to measure several aspects of the job an individual performs, such as variety, task identity, task significance, autonomy, etc. They are taken directly from the Job Diagnostic Survey (JDS) which Hackman and Oldham (1980) describe in depth.

The current research is documented in Tables 31 through 37. Table 31 reports statistics for a 3-item measure of feedback intrinsic to the work performed. Table 32 presents statistics for a 3-item measure of feedback received from sources external to the work performed. Table 33 concerns a 3-item measure of how much the job requires dealing with other people. Table 34 contains archival statistics for a 3-item measure of the significance of a respondent's job. Table 35 includes statistics on a 3-item measure of the variety a respondent's job entails. Table 36 reports statistics on a 3-item measure of how complete the respondent's job is of itself--its identity. Table 37 contains statistics for a 3-item measure of how autonomous a respondent's job is. All seven of these measures use a numbered graphic scale with verbal anchors at each end as well as at the midpoint.

Table 28. WORK GOAL CLARITY (Versions II & III)
(Ivancevich & McMahon, 1977)

[Likert scale ranging from strongly disagree (1) thru neither agree nor disagree (4) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
I know exactly what is expected of me in performing my job	---	10,72	10,72
I understand clearly what my supervisor expects me to accomplish on the job	---	10,73	10,73
What I am expected to do at work is clear and unambiguous	---	10,74	10,74
I understand the priorities associated with what I am expected to accomplish on the job	---	10,75	10,75

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	22.10	6.22	.92
SAMPLE 4	83	21.89	6.26	.92
SAMPLE 5	199	21.41	6.19	.88
SAMPLE 6	538	21.03	5.90	.89
SAMPLE 7	86	21.93	6.23	.92
SAMPLE 8	48	23.33	4.38	.83
SAMPLE 9	113	21.57	5.96	.89
SAMPLE 10	419	21.10	5.95	.91
SAMPLE 11	484	20.93	5.86	.91
SAMPLE 12	97	21.66	5.69	.86
GRAND AVERAGES:	238	21.35	5.96	.90

Table 29. WORK GOAL DIFFICULTY (Versions II & III)
(Ivancevich & McMahon, 1977)

[Likert scale ranging from strongly disagree (1) thru neither agree nor disagree (4) to strongly agree (7)]	VERSION (Page, Version Number) I	II	III
ITEM			
It takes a high degree of skill on my part to attain the results expected for my work	---	10,76	10,76
Results expected in my job are very difficult to achieve	---	10,77	10,77
It takes a lot of effort on my part to attain the results expected for my work	---	10,78	10,78
I must work hard to accomplish what is expected of me for my work	---	10,79	10,79
I must exert a significant amount of effort to attain the results expected of me in my job	---	10,80	10,80

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	24.03	6.77	.81
SAMPLE 4	83	24.29	6.60	.83
SAMPLE 5	199	22.01	7.82	.87
SAMPLE 6	538	24.16	7.55	.88
SAMPLE 7	86	21.35	6.91	.81
SAMPLE 8	48	24.60	6.02	.83
SAMPLE 9	113	23.08	7.02	.84
SAMPLE 10	419	23.14	6.73	.85
SAMPLE 11	484	23.17	7.21	.88
SAMPLE 12	97	22.62	6.06	.80
GRAND AVERAGES:	238	23.38	7.08	.85

Table 30. WORK GOAL REALISM (Versions II & III)

[Likert scale ranging from strongly disagree (1) thru neither agree nor disagree (4) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
The amount of work I am expected to accomplish on the job is realistic	---	11,1	11,1
The results I am expected to attain in my work are realistic	---	11,2	11,2
What my supervisor expects me to accomplish on my job is not impossible	---	11,3	11,3
I find that the results that I am expected to attain in my work are achievable	---	11,4	11,4

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	22.02	5.48	.83
SAMPLE 4	83	23.12	4.65	.77
SAMPLE 5	199	22.21	5.31	.83
SAMPLE 6	538	20.22	6.28	.90
SAMPLE 7	86	21.07	6.31	.88
SAMPLE 8	48	22.13	5.14	.82
SAMPLE 9	113	21.43	4.92	.75
SAMPLE 10	419	21.74	4.83	.80
SAMPLE 11	484	20.95	5.25	.84
SAMPLE 12	97	23.29	4.12	.75
GRAND AVERAGES:	238	21.39	5.40	.84

Table 31. JOB CHARACTERISTICS (INTERNAL FEEDBACK) (JDS)
(Hackman & Oldham, 1980)

[Numbered graphic scale with verbal anchors at the low end (1), midpoint (4), and high end (7)] ITEM	VERSION (Page, Version Number) I	II	III
To what extent does doing the job itself provide you with information about your work performance? That is, does the actual work itself provide clues about how well you are doing--aside from any 'feedback' co-workers or supervisors may provide	7,53	---	---
Just doing the work required by the job provides many chances for me to figure out how well I am doing	8,57	---	---
The job itself provides very few clues about whether or not I am performing well *	8,65	---	---

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	14.75	4.14	.78
SAMPLE 2	245	14.60	3.34	.57
GRAND AVERAGES:	194	14.66	3.63	.65

Table 32. JOB CHARACTERISTICS (EXTERNAL FEEDBACK) (JDS)
(Hackman & Oldham, 1980)

[Numbered graphic scale with verbal anchors at the low end (1), midpoint (4), and high end (7)]	VERSION (Page, Version Number) I	II	III
ITEM			
To what extent do managers or co-workers let you know how well you are doing on your job	7,52	---	---
The supervisors and co-workers on this job almost never give me any 'feedback' about how well I am doing in my work *	8,60	---	---
Supervisors often let me know how well they think I am performing the job	8,63	---	---

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	12.17	5.01	.84
SAMPLE 2	245	11.19	4.40	.76
GRAND AVERAGES:	194	11.55	4.62	.79

Table 33. JOB CHARACTERISTICS (DEALING WITH OTHERS) (JDS)
(Hackman & Oldham, 1980)

[Numbered graphic scale with verbal anchors at the low end (1), midpoint (4), and high end (7)] ITEM	VERSION (Page, Version Number) I	II	III
To what extent does your job require you to work closely with other people (either 'clients,' or people in related jobs in your own organization	6,47	---	---
The job requires a lot of cooperative work with other people	8,55	---	---
The job can be done adequately by a person working alone--without talking or checking with other people *	8,59	---	---

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	16.32	3.90	.61
SAMPLE 2	245	16.39	3.34	.59
GRAND AVERAGES:	194	16.36	3.55	.60

Table 34. JOB CHARACTERISTICS (SIGNIFICANCE) (JDS)
(Hackman & Oldham, 1980)

[Numbered graphic scale with verbal anchors at the low end (1), midpoint (4), and high end (7)]	VERSION (Page, Version Number) I	II	III
ITEM			
In general, how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people	7,51	14,8	14,8
This job is one where a lot of other people can be affected by how well the work gets done	8,61	14,12	14,12
The job itself is not very significant or important in the broader scheme of things *	8,67	14,16	14,16

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	17.76	3.39	.67
SAMPLE 2	245	17.25	3.35	.56
SAMPLE 3	313	17.34	3.42	.55
SAMPLE 4	83	17.61	3.10	.46
SAMPLE 5	199	15.48	4.49	.67
SAMPLE 6	538	16.56	3.78	.70
SAMPLE 7	86	16.22	3.87	.64
SAMPLE 8	48	16.73	4.36	.84
SAMPLE 9	113	16.32	4.09	.73
SAMPLE 10	419	17.30	3.53	.69
SAMPLE 11	484	16.39	4.10	.73
SAMPLE 12	97	17.47	3.56	.74
GRAND AVERAGES:	230	16.82	3.75	.67

Table 35. JOB CHARACTERISTICS (VARIETY) (JDS)
(Hackman & Oldham, 1980)

[Numbered graphic scale with verbal anchors at the low end (1), midpoint (4), and high end (7)]	VERSION (Page, Version Number) I	II	III
ITEM			
How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of skills and talents?	6,50	13,7	13,7
The job requires me to use a number of complex or high-level skills	8,54	14,9	14,9
The job is quite simple and repetitive *	8,58	14,11	14,1

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	13.06	5.15	.78
SAMPLE 2	245	13.49	3.83	.57
SAMPLE 3	313	15.17	4.22	.66
SAMPLE 4	83	16.65	3.24	.52
SAMPLE 5	199	12.64	5.55	.78
SAMPLE 6	538	14.50	4.26	.72
SAMPLE 7	86	12.91	4.96	.75
SAMPLE 8	48	12.79	4.58	.76
SAMPLE 9	113	13.89	4.42	.70
SAMPLE 10	419	14.28	4.23	.69
SAMPLE 11	484	13.99	4.41	.72
SAMPLE 12	97	15.48	3.57	.69
GRAND AVERAGES:	230	14.15	4.36	.70

Table 36. JOB CHARACTERISTICS (IDENTITY) (JDS)
(Hackman & Oldham, 1980)

[Numbered graphic scale with verbal anchors at the low end (1), midpoint (4), and high end (7)]	VERSION (Page, Version Number) I	II	III
ITEM			
To what extent does your job involve doing a 'whole' and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the overall piece of work, which is finished by other people or by automatic machines	6,49	13,6	13,6
The job is arranged so that I do not have the chance to do an entire piece of work from beginning to end *	8,56	14,10	14,10
The job provides me the chance to completely finish the pieces or work I begin	8,64	14,14	14,14

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	14.22	4.46	.66
SAMPLE 2	245	14.28	3.80	.51
SAMPLE 3	313	15.31	3.71	.51
SAMPLE 4	83	15.59	3.26	.34
SAMPLE 5	199	14.09	4.66	.70
SAMPLE 6	538	14.58	4.30	.71
SAMPLE 7	86	15.26	3.93	.62
SAMPLE 8	48	14.42	4.17	.77
SAMPLE 9	113	14.59	4.29	.70
SAMPLE 10	419	15.02	4.06	.71
SAMPLE 11	484	14.90	4.27	.72
SAMPLE 12	97	16.28	3.28	.69
GRAND AVERAGES:	230	14.81	4.10	.65

Table 37. JOB CHARACTERISTICS (AUTONOMY) (JDS)
(Hackman & Oldham, 1980)

[Numbered graphic scale with verbal anchors at the low end (1), midpoint (4), and high end (7)]	VERSION (Page, Version Number) I	II	III
ITEM			
How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing the work	6,48	13,5	13,5
The job denies me any chance to use my personal initiative or judgment in carrying out the work *	8,62	14,13	14,13
The job gives me considerable opportunity for independence and freedom in how I do the work	8,66	14,15	14,15

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	13.55	4.12	.69
SAMPLE 2	245	13.08	3.81	.66
SAMPLE 3	313	15.30	3.94	.71
SAMPLE 4	83	16.10	3.43	.56
SAMPLE 5	199	13.39	4.68	.72
SAMPLE 6	538	14.59	3.86	.70
SAMPLE 7	86	14.60	4.19	.76
SAMPLE 8	48	14.44	3.77	.67
SAMPLE 9	113	14.30	3.92	.64
SAMPLE 10	419	14.07	4.31	.77
SAMPLE 11	484	14.20	4.16	.73
SAMPLE 12	97	15.10	3.78	.76
GRAND AVERAGES:	230	14.30	4.05	.71

Job Feedback

These items measure feedback. The items composing this scale in versions II and III were taken directly from the Job Characteristics Inventory (JCI) which is described by Sims, Szilagyi, and Keller (1976).

Tables 38 and 39 document the current research. Table 38 reports statistics for a 3-item desktop measure of feedback used in ASWA version I. It is scored on a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.' Table 39 contains statistics for the 5-item measure used in survey versions II and III. This measure is scored against a 5-point incremental scale ranging from 'very little,' through 'a moderate amount,' to 'very much.'

Manifest Needs

These scales measure the individual's need for achievement and need for affiliation. They are taken directly from the Manifest Needs Questionnaire (MNQ) which Steers and Braunstein (1976) developed. Dreher and Mai-Dalton (1983) discuss the reliability of this measure.

Statistics from the current research appear in Tables 40 and 41. Both tables document measures containing five items which are scored on a 7-point incremental scale ranging from 'never,' through 'seldom' and 'usually,' to 'always.'

Sense of Competence

The sense of competence measure in survey version I contains three items which attempt to measure the respondent's confidence in his or her ability to accomplish assigned tasks. Responses are scored against a 7-

Table 38. JOB FEEDBACK (Version I)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
My supervisor lets me know when I am doing a poor job	10,83	---	---
My supervisor lets me know when I am doing a good job	10,84	---	---
I can determine for myself how well I am doing my job without feedback from anyone else	10,85	---	---

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	14.82	3.63	.40
SAMPLE 2	245	14.56	3.14	.28
GRAND AVERAGES:	194	14.66	3.32	.32

Table 39. JOB FEEDBACK (Versions II & III) (JCI)
(Sims et al, 1977)

[Five-point incremental scale ranging from very little (1) thru a moderate amount (3) to very much (5)]	VERSION (Page, Version Number) I	II	III
ITEM			
To what extent do you find out how well you are doing on the job as you are working	---	15,17	15,17
To what extent do you receive information from your superior on your job performance	---	15,18	15,18
The feedback from my supervisor on how well I am doing	---	15,19	15,19
The opportunity to find out how well I am doing in my job	---	15,20	15,20
The feeling that I know whether I am performing my job well or poorly	---	15,21	15,21

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	15.18	5.42	.89
SAMPLE 4	83	14.20	4.99	.88
SAMPLE 5	199	13.80	5.57	.92
SAMPLE 6	538	15.24	5.33	.92
SAMPLE 7	86	15.44	6.41	.95
SAMPLE 8	48	17.50	4.71	.91
SAMPLE 9	113	16.12	6.31	.94
SAMPLE 10	419	16.19	5.25	.92
SAMPLE 11	484	15.69	5.33	.91
SAMPLE 12	97	14.09	4.93	.89
GRAND AVERAGES:	238	15.38	5.39	.91

Table 40. MANIFEST NEEDS (NEED FOR ACHIEVEMENT) (MNQ)
(Steers & Braunstein, 1976)

[Seven-point incremental scale ranging from never (1) thru seldom (3) and usually (5) to always (7)] ITEM	VERSION (Page, Version Number) I	II	III
I do my best work when my job assignments are fairly difficult	---	15,22	15,22
I try very hard to improve on past performance at work	---	15,23	15,23
I take moderate risks and stick my neck out to get ahead at work	---	15,24	15,24
I try to avoid any added responsibilities on my job *	---	15,25	15,25
I try to perform better than my co-workers	---	16,26	16,26

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	25.66	4.10	.52
SAMPLE 4	83	25.43	3.88	.42
SAMPLE 5	199	25.88	4.64	.69
SAMPLE 6	538	26.58	4.12	.69
SAMPLE 7	86	26.35	4.30	.65
SAMPLE 8	48	25.98	4.38	.68
SAMPLE 9	113	26.39	4.20	.65
SAMPLE 10	419	26.05	4.06	.60
SAMPLE 11	484	26.12	4.21	.66
SAMPLE 12	97	25.71	4.09	.60
GRAND AVERAGES:	238	26.11	4.17	.63

Table 41. MANIFEST NEEDS (NEED FOR AFFILIATION) (MNQ)
(Steers & Braunstein, 1976)

[Seven-point incremental scale ranging from never (1) thru seldom (3) and usually (5) to always (7)]	VERSION (Page, Version Number) I	II	III
ITEM			
When I have a choice, I try to work in a group instead of by myself	---	16,27	16,27
I pay a good deal of attention to the feelings of others at work	---	16,28	16,28
I prefer to do my own work and let others do theirs *	---	16,29	16,29
I express my disagreements with others openly *	---	16,30	16,30
I find myself talking to others around me about non-business related matters	---	16,31	16,31

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	20.03	3.26	-.08
SAMPLE 4	83	20.43	3.16	-.18
SAMPLE 5	199	19.52	3.57	.19
SAMPLE 6	538	19.18	2.97	.07
SAMPLE 7	86	20.10	3.34	.19
SAMPLE 8	48	20.31	3.63	.19
SAMPLE 9	113	20.76	3.99	.23
SAMPLE 10	419	20.65	2.97	-.01
SAMPLE 11	484	20.37	3.20	.09
SAMPLE 12	97	20.01	3.04	.15
GRAND AVERAGES:	238	20.03	3.19	.06

Table 42. SENSE OF COMPETENCE (Version I)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
I don't have enough time to do everything that is expected of me on my job	9,72	---	---
The amount of work I have to do interferes with how well it gets done	9,73	---	---
I have work standards that cannot be met given my time constraints	9,74	---	---

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 1	142	10.76	5.15	.84
SAMPLE 2	245	10.31	4.29	.73
GRAND AVERAGES:	194	10.48	4.61	.77

point Likert scale ranging from 'strongly disagree' to 'strongly agree.' Statistics from the current research are at Table 42.

The sense of competence measure used in survey versions II and III was taken directly from the Sense of Competence Questionnaire (SCQ) developed by Wagner and Morse (1975). It too is a measure of the level of confidence a respondent has in his or her ability to accomplish assigned responsibilities. This measure includes 13 items which are scored on a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.' Archival statistics from the current research are in Table 43.

Situational Performance Constraints

This scale attempts to measure obstacles and constraints which an individual perceives as inhibiting his or her performance. The measure was developed by Steel and Mento (1986) and appears only in version III of the AFIT Survey of Work Attitudes. There are four items in the measure which are scored on a 7-point scale ranging from 'never', through 'rarely' and 'often,' to 'always.' Statistical results from the current research appear in Table 44.

Impersonalness of Institutions

This scale measures the perceived impersonalness of the organization in which the respondent works. Steel et al (1985) provide a discussion of this scale. The measure contains five bipolar adjectives (e.g., unconcerned-concerned) which are rated on a scale from 1 to 7. The current research results are found in Table 45.

Table 43. SENSE OF COMPETENCE (Versions II & III) (SCQ)
(Wagner & Morse, 1975)

[Likert scale ranging from strongly disagree (1) to strongly agree (7)] ITEM	VERSION (Page, Version Number) I	II	III
The job offers me a chance to test myself and my abilities	---	17,32	17,32
Doing this job well is a reward in itself	---	17,33	17,33
If the work were only more interesting I would be motivated to perform better *	---	17,34	17,34
Mastering the job meant a lot to me	---	17,35	17,35
My talents, or where I can concentrate my attention best, are found in areas not related to this job *	---	17,36	17,36
This job is valuable to me for no other reason than I like to do it	---	17,37	17,37
At times I can get so involved in my work that I forget what time it is	---	17,38	17,38
Even though the work here could be rewarding, I am frustrated and find motivation continuing only because of my paycheck *	---	17,39	17,39
I honestly believe I have all the skills necessary to perform this task well	---	17,40	17,40
I would make a fine model for an apprentice to follow in order to learn the skills he/she would need to succeed	---	17,41	17,41
No one knows this job better than I do	---	17,42	17,42
If anyone here can find the answer, I'm the one	---	17,43	17,43

Table 43. (Continued)

I do not know as much as my predecessor did concerning this job *	---	17,44	17,44

* -- Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	63.99	10.45	.70
SAMPLE 4	83	65.20	9.19	.62
SAMPLE 5	199	59.57	10.88	.69
SAMPLE 6	538	62.10	11.14	.75
SAMPLE 7	86	60.93	11.91	.77
SAMPLE 8	48	61.00	12.38	.81
SAMPLE 9	113	60.12	11.49	.74
SAMPLE 10	419	60.54	11.15	.76
SAMPLE 11	484	60.33	11.32	.77
SAMPLE 12	97	64.06	10.22	.72
GRAND AVERAGES:	238	61.53	11.03	.74

Table 44. SITUATIONAL PERFORMANCE CONSTRAINTS

[Seven-point scale, ranging from never (1) thru rarely (3) and often (5) to always (7), which indicates how often a given obstacle causes a problem for the respondent]	VERSION (Page, Version Number) I	II	III
ITEM			
Job Induced Constraints--factors in the make-up of the job itself (e.g., assembly line paced work) that determine levels of performance	---	---	19,50
Interpersonal or Social Obstacles--represents the quality of interpersonal relationships (e.g., communication climate, cooperation) among individuals who interact with you in the course of your work	---	---	19,51
Environmental Obstacles--factors in the physical job environment (e.g., excessive noise or heat) and in the geographical locale of the work (e.g., sales potential) that affect your job performance	---	---	19,52
Administrative or Policy Constraints--rules, regulations, and requirements imposed upon you by the organization or by governmental agencies that impede your job performance	---	---	19,53

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 12	97	15.57	3.70	.61

Table 45. IMPERSONALNESS OF INSTITUTIONS

[Seven-point bipolar rating scales]	VERSION (Page, Version Number) I	II	III
ITEM			
Unconcerned--1--2--3--4--5--6--7--Concerned	---	19,50	---
Impersonal--1--2--3--4--5--6--7--Humane	---	19,51	---
Uncaring--1--2--3--4--5--6--7--Caring	---	19,52	---
Disinterested--1--2--3--4--5--6--7--Interested	---	19,53	---
Aloof--1--2--3--4--5--6--7--Friendly	---	19,54	---

SAMPLE	N	MEAN	STD DEV	ALPHA
SAMPLE 3	313	23.52	7.67	.95
SAMPLE 4	83	23.99	6.76	.92
SAMPLE 5	199	17.70	8.07	.96
SAMPLE 6	538	18.94	4.82	.71
SAMPLE 7	86	21.52	7.97	.97
SAMPLE 8	48	23.69	5.55	.90
SAMPLE 9	113	19.73	8.73	.96
SAMPLE 10	419	22.57	7.25	.95
SAMPLE 11	484	20.71	7.91	.96
GRAND AVERAGES:	353	20.92	6.99	.90

Intent to Remain

This is a single-item scale measuring a respondent's intention to remain with or depart from federal service at some future time. A relevant discussion of scales of this type may be found in Steel and Ovalle (1984b). Responses to the single item indicate the respondent is definitely remaining, probably remaining, undecided about remaining or leaving, probably leaving, or definitely leaving government service. Results of the current research are located in Table 46.

Table 46. INTENT TO REMAIN

	VERSION (Page, Version Number) I	II	III
Within the coming year, if I have my own way *	11,96	5,19	5,19

1 - I definitely intend to remain with the Air Force
2 - I probably will remain with the Air Force
3 - I have not decided whether I will remain with the Air Force
4 - I probably will not remain with the Air Force
5 - I definitely intend to separate from the Air Force

* Item is reversed in scoring

SAMPLE	N	MEAN	STD DEV
SAMPLE 1	164	5.92	1.26
SAMPLE 2	273	5.29	1.50
SAMPLE 3	373	2.05	1.39
SAMPLE 4	103	1.78	1.30
SAMPLE 5	279	2.05	1.27
SAMPLE 6	719	1.80	1.18
SAMPLE 7	116	1.83	1.27
SAMPLE 8	71	2.06	1.46
SAMPLE 9	196	2.28	1.45
SAMPLE 10	543	1.89	1.21
SAMPLE 11	732	2.06	1.30
SAMPLE 12	103	1.81	1.07
GRAND AVERAGES:	305	2.38	1.29

IV. Conclusions and Recommendations

The archival statistics of the preceding chapter form a basis for cross-sample comparisons of research using the AFIT Survey of Work Attitudes. Through sample descriptions and survey statistics, researchers now have norms to which they can compare the results of their own research.

Researchers also have documentation of the reliability of the ASWA scales. The results of the current research indicate the scales in the AFIT Survey of Work Attitudes vary considerably in their reliability. Many are undoubtably reliable enough for any research effort, having reliability coefficients in the eighties and nineties. Others, having lower coefficients, may or may not be acceptable measures depending upon the type of research and judgments of the researchers involved. The lowest reliability coefficients are found in the Job Feedback Scale (Table 38; a=.32), Work Goals Scale (Table 27; a=.19), and Need for Affiliation Scale (Table 41; a=.06). The scales in Tables 38 and 27 are not included in the current version of the ASWA, which seems wise. But, consideration also should be given to either strengthening the reliability of the Need for Affiliation Scale (Table 41) or eliminating it altogether.

However, reliability is not the only criteria by which a scale is judged acceptable for use in research. Validity, as discussed in the introductory chapter of this thesis, is also an important consideration. It is recommended that future research efforts focus on the protracted process of validating the ASWA scales to provide a more complete picture of their suitability in specific types of research.

Appendix A: Survey Items Not Included in Scales

ITEM [SCALE]	VERSION (Page, Version Number) I	II	III
I would rather get a job promotion than be a more important member of my club, church, or lodge [Likert scale ranging from strongly disagree (1) to strongly agree (7)]	4,42	7,45	7,45
I avoid taking on extra duties and responsibilities [Likert scale ranging from strongly disagree (1) to strongly agree (7)] *	4,46	7,49	7,49
My life away from my work causes me a great deal of stress and anxiety [Likert scale ranging from strongly disagree (1) to strongly agree (7)]	9,76	---	---
Your supervisor has a very accurate knowledge of your performance	13,118	---	---
Your supervisor provides you with clear, specific feedback about your performance	13,119	---	---
As fairly and objectively as you can, rate the typical amount of effort you normally put into doing your job [Five-point incremental scale ranging from very little effort (1) thru moderate effort (3) to very much effort (5)]	10,95	5,18	5,18
My supervisor knows his/her workers very well; that is, he/she can pinpoint personalities and thereby decides who works well with whom [Likert scale ranging from strongly disagree (1) to strongly agree (7)]	---	18,45	18,45
There is a great deal of support and unselfishness in our work group [Likert scale ranging from strongly disagree (1) to strongly agree (7)]	---	18,46	18,46

Members of our work group are treated equally in terms of their worth to the work group [Likert scale ranging from strongly disagree (1) to strongly agree (7)]	---	18,47	18,47
To what extent are your organization's goals compatible with your own personal goals [Seven-point incremental scale ranging from not at all (1) thru to a moderate extent (4) to to a very great extent (7)]	---	18,48	18,48
Compared to others whose job is similar to yours how would you rate your ability to perform the work [Five-point incremental scale ranging from much less (1) thru typical or average (3) to much more (5)]	---	18,49	18,49
How often are constraints a source of frustration for you [Seven-point scale, ranging from never (1) thru rarely (3) and often (5) to always (7)]	---	---	19,54

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VITA

Captain Fraser B. Crow, Jr., was born on 29 December 1953 at James Connally Air Force Base (AFB), Waco, Texas. He graduated from high school in Cambria, California, in 1971. At that time, he enlisted in the United States Air Force, in which he served for five years as a Vietnamese and Hebrew linguist. In 1976, Captain Crow was released from active duty to accept an ROTC scholarship at New Mexico State University, where he subsequently received a Bachelor of Arts with honors in Economics in 1978. He returned to the Air Force as a second lieutenant in February 1979. His first working assignment was at Lowry AFB, Denver, Colorado, where he served as a squadron administration officer and squadron commander within the 3400th Technical Training Wing. In 1981, Captain Crow transferred to George AFB, California, where he served for three years as squadron section commander in the 831st Civil Engineering Squadron. He then traveled to Maxwell AFB, Alabama, in 1984, where he served for one year as a section commander at Squadron Officer School and one year as executive officer of the 3800th Air Base Wing. In May 1986, Captain Crow entered the School of Systems and Logistics, Air Force Institue of Technology.

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AD-A188 480

REPORT DOCUMENTATION PAGE

Form Approved
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1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution unlimited.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) AFIT/GIR/LSR/87D-3	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION School of Systems and Logistics 6b. OFFICE SYMBOL (If applicable) AFIT/LS Y	7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS (City, State, and ZIP Code) Air Force Institute of Technology (AU) Wright-Patterson AFB OH 45433-6583	7b. ADDRESS (City, State, and ZIP Code)
8a. NAME OF FUNDING/SPONSORING ORGANIZATION 8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State, and ZIP Code)	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO / WORK UNIT ACCESSION NO.

11. TITLE (Include Security Classification)
COMPENDIUM OF NORMS AND ARCHIVAL STATISTICS ON THE AFIT SURVEY OF WORK ATTITUDES

12. PERSONAL AUTHOR(S)
Fraser B. Crow, Jr., B.A., Capt, USAF

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
MS Thesis	FROM _____ TO _____	1987 December	100

16. SUPPLEMENTARY NOTATION

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	
05	09		TEST CONSTRUCTION (PSYCHOLOGY), PSYCHOMETRICS, PERSONNEL MANAGEMENT, BEHAVIORAL SCIENCE, SOCIAL PSYCHOLOGY, QUESTIONNAIRES, Theses.

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

Thesis Chairman: Robert P. Steel, PhD
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Approved for public release: IAW AFR 190-1.
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Item 19.

Abstract

The purpose of this research was to document the psychometric qualities of the Air Force Institute of Technology's (AFIT) Survey of Work Attitudes (ASWA). The study provides a brief background on the concepts of reliability, validity, and normative statistics. Then follows a statistical description of twelve independent samples obtained since 1981 with the ASWA at various government organizations around the United States. Sample size, mean, standard deviation, and reliability coefficient are provided for each scale within the ASWA for each sample in which it appears. Furthermore, a weighted average of each of these statistics over all samples in which a scale appears is also provided.

The situation-dependent nature of reliability leaves open the question of suitability of these scales to future research. Many of the scales are highly reliable; a few are not. Additional study, especially concerning validation of the ASWA scales, is still required to ascertain the true value of these measures to future research.